

*Gloss nitus.*

April 18-19

1964



(54)

April 18

985

BW 4 25-28 Leonard & Hess  
unconf. King loc 104.

In the ravine there is one  
contour interval about 53'  
of shale from igneous contact to  
base of conglomerate. Shale N83°W  
3°N.

Is opposite King 104 to igneous  
dike or fault is *Amstel*

731C - fusulinids near top of  
figure 8-shaped hill at W  
end of Hess Ranch Horst.

731A - fusulinids between fault  
and top of elliptical knob.

731d - About 20' below cgl.  
in Neal Ranch shale, west  
of fault at head of Valley

BW 4 - to end Hess Horst, E  
end at fault.

BW 5 - 0-6 same views of  
narrow hill at east end Horst  
of *Succinella* at 720c

C 7-12 - same as BW 5



(55)

Examined east end of Horst Basal cgl. of ~~Elmore~~ Hills is in contact with Neal Ranch shale at N end of valley in which igneous body exists. The shale occupies an elevation of 1 contour = 50' on west side valley but igneous body is in contact with cgl. at fault. The fault runs down west side of elliptical hill with a zone about 20' wide. A large baked zone is evident and the igneous body is in contact with the shale on the west side but tapers up to the cgl on the east. The elliptical hill is composed mostly of Hess limestone tipped up 50-60°. On the NE slope 80' above the road is a patch of biohermal limestone with *Crinoidella*, probably overlying the Hess unconformably as it does at King loc 1104. No *Crinoidella* was seen in the middle part of the elliptical hill but it appears on the south side (loc 724t) and extends some distance to the south.



April 19

987

(56)

as at 724a (check)

In afternoon examined locality 720e and went to see Royal Canyon at 726c and others.

April 19

5'  
6'  
15' 730f

5' covered

12" ls

5' covered 730e

3'

2' covered on thin

A 9'  
730e

W side Dugout Mtn.

A.- Thick bedded sandy limestone with hard silicious brown skins on top. Sponges abundant. Rock dark gray, finely granular. Small productids (*Elliottella*?) and mostly fragmentary specimens & bryozoa scattered on surfaces. Sponges very abundant on surfaces.

G- Thinner bedded same rock in layers 6"-1" mostly the former

This sequence is in the upper part of Leonard #3



(57)

730g

Leonard #4 - Thick bedded dark gray sandy limestone with siliceous surfaces often covered with sponges and fragments of fossils. Layer is about 5' thick of 2 or three layers overlain by cherty beds and sandstone and fine bedded ss. Ammonites common but hard to get. Sponges very abundant. 730h - is a limy bed 50' above Leonard #4.

730j

Leonard ls #4 - Poorly exposed on surface of hill - consists of thin bedded sandy ls. & calcarenite with beds of shell breccia with few recognizable fossils. Dark gray sandy limestone with ammonites like those below. Tom says about 15'. Many sponges in places. Small pebbles. Rock is sandy, fossils mostly badly broken.



(58)

Bioherms in hill 4801  
20' of lime stone on top of  
big Bioherm under 4801.

A - 1' yellow siliceous shale

A - lower 10' of dark gray chunky  
ls. with occasional goniatites

B - 3 or 4 feet bioherms fr.

C - 6 or 7' of calcarenite with 2" siliceous skin on top.

730K - Ammonites from 5' above  
large bioherm in hill 4801.

730-2 - Fusulinids from between  
bioherms, hill 4801, Decie  
Ranch.

BW5 - to 13 Dugout Mtn and  
hill 4801

C7 - to 29 same

Leonard #4 is lithologically  
and faunally like the Leonard  
#2 & 3 limestones. Also have the  
same goniatites out of  
dark gray blocky limestones  
in limestone #1 in hill  
4801 of the Lanox Hills. This  
suggests that from the  
Sedgwickella beds up we  
have essentially the  
same fauna. I do not  
have good brachiopod



(59)

collections from these beds but in all the collecting done did not turn up *Crustatella* or the characteristic higher Leonard species.

The bed #5 has calcinulites or shell bruccias like those below but we saw no goniatite beds like those below and it is quite easy to locate *Crustatella* or other early Cathedral Mtn. types.

In afternoon visited bioherms in hill 4801 where I collected goniatites, same assemblage as in limestones #2, 3, 4. If it were not for the bioherms near the top of the 20' above the big bioherm I would think it possible that these beds represent the three ls. thinned down and with intervening shale pinched out. This is a possible explanation but the whole sequence seems to belong to limestone #1.



$47$   
 $2\frac{1}{2}$   


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 $22$   
 $88$   


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 $110$

$55/35$  9  
 $3030$   
 $355$   
 $3535$